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EOSDIS Core System Project

Flight Operations Segment (FOS) Release A Version Description Document (VDD) for the ECS Project

Subject to government approval and not intended for general distribution.

Version 1.00

October 18, 1996

Hughes Information Technology Systems
Upper Marlboro, Maryland

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Prepared Under Contract NAS5-60000

SUBMITTED BY

R. E. Clinard /s/ 10/18/96

Robert E. Clinard, ECS CCB Chairman Date
EOSDIS Core System Project

Hughes Information Technology Systems
Upper Marlboro, Maryland

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Preface

This preliminary document accompanies the delivery of the Earth Observing System (EOS) Flight Operations Segment (FOS) Version 1.00 software and hardware for the ECS project. It is not a formal deliverable and does not require Government approval. However, it has been placed under configuration control by the EOSDIS Core System (ECS) Change Control Board (CCB). Changes to this document shall be made by document change notice (DCN) or by complete revision.

Any questions regarding distribution should be addressed to:

Data Management Office
The ECS Project Office
Hughes Information Technology Systems
1616 McCormick Dr.
Upper Marlboro, MD 20774

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Abstract

This document describes the delivery contents of the FOS components including commercial off-the-shelf (COTS) hardware and software, Version 1.00 of custom FOS software, and accompanying documentation.

The purpose of this document is to describe the contents of the FOS delivery. It briefly describes the capabilities of the product, provides an inventory of the delivery, lists unresolved problems, and addresses issues such as special operating instructions, and disclaimer notices for public domain software used in the product.

Keywords: CCB, deliver, EOC, ECL, description, instructions, inventory, FOT, FOS, manual, operations, problems, release, software, tools, user's, version, 1ST

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1. Introduction

1.1 Identification of Document

This is a Version Description Document (VDD) prepared using NASA-STD-2100-91 (NASA-DID-P500, NASA form DD250) as a guide. It is submitted as part of Flight Operations Segment (FOS) delivery for the Earth Observing System Data and Information System (EOSDIS) Core System (ECS), contract number NAS5-60000.

1.2 Scope of Document

This document describes the delivery contents of the FOS components including commercial off-the-shelf (COTS) software, Version 1.00 of custom FOS ECS software, and accompanying documentation.

1.3 Purpose and Objectives of Document

The purpose of this document is to describe the contents of the FOS delivery. It briefly describes the capabilities of the product, provides an inventory of the delivery, lists unresolved problems, and addresses issues such as special operating instructions, system limitations, and disclaimer notices for public domain software used in the product.

1.4 Document Status and Schedule

This VDD is submitted as a preliminary document. The preliminary version of the VDD will be used for Acceptance Testing of Release A of the FOS.

The final document is scheduled for delivery thirty days after the Release Readiness Review (RRR). Any changes to the product that require a subsequent version of this document to be released will be described in a new VDD.

1.5 Document Organization

The format and contents of this document comply with NASA-DID-P500 and NASA-DID-999 as defined in NASA-STD-2100-91.

- Introduction — Introduces the VDD scope, purpose, objectives, status, schedule and document organization.
- Related Documentation — Provides a bibliography of reference documents for the VDD organized by parent and binding subsections.
- Product Description — Describes the general capabilities and product contents.
- Inventory — Lists product inventory including COTS and custom FOS software (contents of tar file).

- Non-conformance Status — Discusses known problems with the FOS software and lists Non-conformance Reports with an open status.
- Appendices — Contain supplemental information such as: build/installation instructions, problem reporting, and public software disclaimer notices.
- Abbreviations and Acronyms — Contains an alphabetized list of the definitions for abbreviations and acronyms used in this volume.

2. Related Documentation

2.1 Parent Document

The parent documents are the documents from which the scope and content of this document is derived.

423-42-01	EOSDIS Core System Statement of Work - CN10
423-41-02	Goddard Space Flight Center, Functional and Performance Requirements Specification for the Earth Observing System Data and Information System (EOSDIS) Core System (ECS)
NASA-STD-2100-91	NASA Software Documentation Standard, Software Engineering Program

2.2 Applicable Documents

The following documents are referenced within this document, or are directly applicable, or contain policies or other directive matters that are binding upon the content of this volume.

194-207-SE1-001	System Design Specification for the ECS Project
304-CD-001-003	Flight Operations Segment (FOS) Requirement Specified for the ECS Project, Volume 1: General Requirements
305-CD-040-001	Flight Operations Segment (FOS) Design Specification for the ECS Project (Segment Level Design)
307-CD-001-003	Flight Operations Segment (FOS) Release Plan and Development Plan 329-CD-001-003 for the ECS Project

2.3 Information Documents

The following documents are referenced herein and, amplify or clarify the information presented in this document. These documents are not binding on the content of the Version Description Document.

222-TP-003-008	Release Plan Content Description for the ECS Project
320-WP-001-001	Flight Operation Segment (FOS) Commercial-off-the-Shelf (COTS) Hardware for Release A
604-CD-001-004	Operations Concept for the ECS Project: Part 1: - ECS Overview
604-CD-004-001	ECS Operations Concept for the ECS Project: Part 2, FOS
609-CD-005-001	Flight Operations Segment (FOS) Operations Tool Manual
SD-1-014	Software Nonconformance Reporting Project Instruction

3. Product Description

This section describes the product capabilities of the FOS ECS software.

3.1 Product Description and General Capabilities

FOS will be deployed October 1996 at one of the Distributed Active Archive Centers (DAACs) - Goddard Space Flight Center (GSFC). It will be an incremental release of the ECS software leading to Release A.

FOS is responsible for mission operations, including the planning, scheduling, commanding, and monitoring of US EOS spacecraft and US EOS instruments onboard the US and International Partner (IP) series of spacecraft. FOS is composed of the EOC located at GSFC, and ISTs associated with the PIs and TLs.

Nine subsystems have been defined to support flight operations. Individually these subsystems perform specific, unique functions; collectively, they provide a set of interrelated services for the Flight Operations Team (FOT) and the IST user community. These subsystems are:

1. Analysis Subsystem (ANA)
2. Command Subsystem (CMD)
3. Command Management Subsystem (CMS)
4. Data Management Subsystem (DMS)
5. FOS User Interface Subsystem (FUI)
6. Planning and Scheduling Subsystem (PAS)
7. Real-Time Contact Management Subsystem (RCM)
8. Resource Management Subsystem (RMS)
9. Telemetry Subsystem (TLM)

The following sections describe the product capabilities in further detail.

3.1.1 Analysis Subsystem (ANA)

The ANA subsystem provides statistics generation, User Supplied Algorithm processing, a Decision Support System (DSS), Routine Request Processing, Carryout Data, and Clock Correlation Process. The ANA subsystem is responsible for managing the on-board systems and for the overall mission monitoring. Its functions include performance analysis and trend analysis. It also cooperates with Telemetry to support fault detection and isolation.

3.1.2 Command Subsystem (CMD)

The CMD subsystem consists of three processes: Format Command, FOP Command, and Transmit Command. Format Command receives and validates command directives. FOP Command builds CLTUs according to CCSDS standard. Transmit command forwards the CLTUs at a specified uplink rate. CMS is responsible for transmitting command data (i.e., Real-Time commands or command loads) to EDOS for uplink to the spacecraft during each real-time contact. Command data can be received in real-time by the operational staff or as preplanned command groups generated by Command Management. The CMD subsystem is also responsible for verifying command execution on-board the spacecraft.

3.1.3 Command Management Subsystem (CMS)

The CMS subsystem contributes a Schedule Controller process, a Command Model process, a Spacecraft Model process, a Ground Schedule process, and a Load Catalog process. CMS manages the preplanned command data for the spacecraft and instruments. Based on inputs received from Planning and Scheduling, Command Management collects and validates the commands, software memory loads, tables loads, and instrument memory loads necessary to implement the instrument and spacecraft scheduled activities.

3.1.4 Data Management Subsystem (DMS)

This subsystem provides the Project Data Base Management processes, Event Processing, Telemetry Archive Process, Ground Telemetry Archive Process, and External Interface Processes. DMS is responsible for maintaining and updating the Project Data Base (PDB) and the FOS history log.

3.1.5 FOS User Interface Subsystem (FUI)

This provides graphical user interface services for all of the FOS subsystems. FUI provides character-based and graphical display interfaces for FOS operators interacting with all of the aforementioned FOS subsystems.

3.1.6 Planning and Scheduling (PAS)

This produces a conflict-free schedule of activities for spacecraft resources. PAS integrates plans and schedules for spacecraft, instruments, and ground operations. Planning and Scheduling provides the operational staff with a common set of capabilities to perform "what-if" analyses and to visualize plans and schedules.

3.1.7 Real-Time Contact Management Subsystem (RCM)

This receives and processes messages from NCC during contact. It also sends request messages to NCC during contact. Status messages are also received and processed from EDOS during contact. RCM is responsible for managing the real-time interface with the NCC and EDOS, as well as with the DSN station, as applicable.

3.1.8 Resource Management Subsystem (RMS)

This provides multiple operators access to the same data stream. It also ensures a single point of command for a specific spacecraft. RMS provides the capability to manage and monitor the configuration of the EOC. This includes configuring the EOC resources for multi-mission support; facilitating operational failure recovery during real-time contacts.

3.1.9 Telemetry Subsystem (TLM)

This provides telemetry decommutation. It also provides for memory dump and spacecraft state checks. TLM receives and processes housekeeping telemetry (in CCSDS packets) from EDOS. After the packet decommutation, the telemetry data is converted to engineering units and checked against boundary limits.

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4. Product Inventory

Delivery of FOS consists of commercial-off-the shelf (COTS) software, public domain software and custom ECS software. This section provides details of these components.

4.1 COTS Software Listing

FOS uses the existing Version 0 Wide Area Network (WAN) to transport data between sites. It uses the existing Version 0 LAN infrastructure to support local networking at the GSFC DAAC.

Table 4-1 summarizes the deployed COTS software at GSFC. Refer to ***Flight Operation Segment (FOS) Commercial-off-the-Shelf (COTS) Hardware for Release A*** (320-WP-001-001) for the physical mapping of FOS Release A COTS hardware to COTS software.

Table 4-1. COTS Software Inventory Listing (GSFC)

Identification:	Component Description	Version	Patches	Vendor	Part Number
CSS-EOC-1 (CSS Server)	HP-UX Revision for 9.0	-	-	HP	A4030B OPT#APH
	C++ Softbench	3.2	-	HP	B2617B
	C++ Softbench End Users Kit	3.2	-	HP	B2620B
	C++ Softbench CD Certificate	3.2	-	HP	B2620B OPT# AAU
	HP-UX CD-ROM Media	-	-	HP	B2826B
	HP-UX Software on Disk	-	-	HP	B2826B OPT#AAF
	C++ Class Library LTU	-	-	HP	B2914AA
	Core Services	1.1	-	HP	B2920A
	US DCS Core Services	9.0	-	HP	B2920A OPT#AAF
	Version of DCE	9.0	-	HP	B2920A OPT#APH
	Applications Development	9.0	-	HP	B2922BA
	HP-UX 9.0 Version of DCE	-	-	HP	B2922BA OPT#APH
	Runtime Instant Ignition	-	-	HP	B3945AA
	English Localization	-	-	HP	B3945AA OPT#ABA
	Revised for HP-UX 9.0	-	-	HP	B3945AA OPT#APH
	Driver for EISA	8.x, 9.x, & 10	-	HP	WA-C285

Table 4-1. COTS Software Inventory Listing (GSFC) cont.

Identification:	Component Description	Version	Patches	Vendor	Part Number
	C++ Softbench Hard Copy Manuals	-	-	HP	B2620B OPT#OB1
	Certificate	-	-	HP	B2922BA OPT#AAU
	First Year Support	-	-	HP	B2617B OPT#OSO
	First Year Support	-	-	HP	B2620B OPT#OSO
CSS-EOC-1 (CSS Server)	First Year Support	-	-	HP	B2826B OPT#OSO
	First Year Support	-	-	HP	B2914AA OPT#OSO
	First Year Support	-	-	HP	B OPT#
	First Year Support	-	-	HP	B OPT#
	First Year Support	-	-	HP	B OPT#
	DCE Client License	1.1	-	HP	B2923A
	DCE CDS Server	1.1	-	HP	B2924A
	DCE Security Server	1.1	-	HP	B2925A
	X/Motif	-	-	-	-
	ClearCase Client 2.1	2.1	patch 2.1-127	-	-
	ClearCase Client 2.1	2.1	patch 2.1-109	-	-
	ClearCase Client 2.1	2.1	patch 2.1-141	-	-
	DCE Client	1.0.3 (a)	-	-	-
	Tivoli Client	-	-	-	-
	Netscape Browser	2.02	-	-	-
	/usr/local/rogue61/net.h++	1.0.1	-	-	-
	/usr/local/rogue61/tools.h++	6.1	-	-	-
	/usr/local/rogue61/dbtools.h++	1.1	-	-	-
	Npassword	1.2.4	-	-	-
	TCP Wrappers	7.3	-	-	-
	Tripwire	1.2	-	-	-
ISS-EOC-1 (Internetworking Equipment)	Firmware	1.07.05	-	CBL	2162059
FOS-EOC-1 (Printer)	The printer contains firmwarewhich is built in.				
FOS-EOC-2 (RAID File Server)	Digital UNIX Operating System	3.2	To be supplied.	DEC	QA-MT4AA-H
	DEC Storage Works Library	-	-	DEC	QA-054AA-C
	Network Applications Support	-	-	DEC	QL-306AE-AA
	OSF/Motif Base Software	1.2.3	-	DEC	QL-MT4AE-6R
	OSF/Motif USR Digital Unix, 8 user	n/a	n/a	DEC	QL-MT7AM-3E
	UNIX SF LIN on CD-ROM	n/a	n/a	DEC	QT-054AA-C
	Jukebox Tier 1	n/a	n/a	DEC	QL-04VAL-3B
	Kerberos 5B5	-	-	-	-
	DCE Client	1.0.3 (a)	-	-	-
	Npassword	1.2.4	-	-	-
	TCP Wrappers	7.3	-	-	-
	Tripwire	1.2	-	-	-

Table 4-1. COTS Software Inventory Listing (GSFC) cont.

Identification:	Component Description	Version	Patches	Vendor	Part Number
	Media & Documentation	n/a	n/a	DEC	QT-MT4AA-E
FOS-EOC-3 (Printer)	The printer contains firmwarewhich is built in.				
CSS-EOC-4	Firmware version 5.6	5.6	-	Advanced Computer Concepts	FIRM
	Micro Plex Ethernet Print Server	1.2	-	Advanced Computer Concepts	PRINT SERVER
FOS-EOC-5 (FOT User Station)	DCE for Solaris 2.4	1.0.3a		SUN	BASE-SVC
	X/Motif				
	RogueWave libraries	6.1			
	Kerberos	5b5		Cygnus	
	Sybase Client	10.02			
	Netscape Browser	2.02			
	Npassword	1.2.4			
	TCP Wrappers	7.3			
	Tripwire	1.2			
FOS-EOC-2 (Real Time Server)	IDL	4.0	-	DEC	IDL
	Digital UNIX Alpha Lib	3.0a	-	DEC	QA-065AA-H8
	DEC Fuse For OSF-1	-	-	DEC	QL-092AM-3B
	DEC Fuse For OSF-1	-	-	DEC	QL-094AM-3B
	Network Application Support	-	-	DEC	QL-306AE-AA
	OSF/Motif Base Software	-	-	DEC	QL-MT4AE-6R
	DEC OSF-1 AXP Developers Ext.	-	-	DEC	QL-MT5AE-AA
	OSF/Motif USR Digital Unix, 8 user	n/a	n/a	DEC	QL-MT7AM-3E
	DEC C++ For U/A	1.3B	-	DEC	QL-MTRAE-AA
	RogueWave libraries	6.1	-	-	-
	Sybase SQL Server	10.0.2	-	-	-
	Sybase Open Client/C	10.0.2	-	-	-
	Sybase Embedded SQL/C	10.0.2	-	-	-
	IMSL/C	2.0	-	-	-
	Kerberos 5B5	-	-	-	-
	DCE Client	1.0.3 (a)	-	-	-
	Npassword	1.2.4	-	-	-
	TCP Wrappers	7.3	-	-	-
	Tripwire	1.2	-	-	-
FOS-EOC-7 (Data Server)	Digital OS	-	-	DEC	QA-054AA-H8
	DEC Fuse For OSF-1	-	-	DEC	QL-092AM-3B
	DEC Fuse For OSF-1	-	-	DEC	QL-094AM-3B
	Network Application Support	-	-	DEC	QL-306AE-AA
	OSF/Motif Base Software	-	-	DEC	QL-MT4AE-6R
	DEC OSF-1 AXP Developers Ext.	-	-	DEC	QL-MT5AE-AA
	OSF/Motif USR Digital Unix, 8 user	n/a	n/a	DEC	QL-MT7AM-3E
	DEC C++ For U/A	1.3B	-	DEC	QL-MTRAE-AA

Table 4-1. COTS Software Inventory Listing (GSFC) cont.

Identification:	Component Description	Version	Patches	Vendor	Part Number
	RogueWave libraries	6.1	-	-	-
	Sybase SQL Server	10.0.2	-	-	-
	Sybase Open Client/C	10.0.2	-	-	-
	Sybase Embedded SQL/C	10.0.2	-	-	-
	IMSL/C	2.0	-	-	-
	Kerberos 5B5	-	-	-	-
	DCE Client	1.0.3 (a)	-	-	-
	Npassword	1.2.4	-	-	-
	TCP Wrappers	7.3	-	-	-
	Tripwire	1.2	-	-	-
FOS-EOC-8 (FOT User Station)	DCE for Solaris 2.4	1.0.3a		SUN	BASE-SVC
	X/Motif				
	RogueWave libraries	6.1			
	Kerberos	5b5		Cygnus	
	Sybase Client	10.02			
	Netscape Browser	2.02			
	Npassword	1.2.4			
	TCP Wrappers	7.3			
	Tripwire	1.2			
	NCSA httpd Server	1.5.1	-	-	-
FOS-EOC-9 (FOT User Station)	DCE for Solaris 2.4	1.0.3a		SUN	BASE-SVC
	X/Motif				
	RogueWave libraries	6.1			
	Kerberos	5b5		Cygnus	
	Sybase Client	10.02			
	Netscape Browser	2.02			
	Npassword	1.2.4			
	TCP Wrappers	7.3			
	Tripwire	1.2			
	RTie (SSR & Activity log)	3.5	-	-	-
	RT Server	3.5	-	-	-
FOS-EOC-10 (FOT User Station)	C++ Products Media, Documentation	2.1	-	SUN	VWSCPL-P
	Visual Workshop Slimkit	2.1	-	SUN	VWSCPL-S
	DCE for Solaris 2.4	1.0.3a		SUN	BASE-SVC
	X/Motif				
	RogueWave libraries	6.1			
	Kerberos	5b5		Cygnus	
	Sybase Client	10.02			
	Netscape Browser	2.02			
	Npassword	1.2.4			
	TCP Wrappers	7.3			
	Tripwire	1.2			

Table 4-1. COTS Software Inventory Listing (GSFC) cont.

Identification:	Component Description	Version	Patches	Vendor	Part Number
	RTie (Expert Advisor)	3.5	-	-	-
	RT Server	3.5	-	-	-
	RThci	3.5	-	-	-
FOS-EOC-11 (Console Manager)	Supplemental Services	-	-	DEC	FM-PC091-36
	Unix Software library LPS CD-ROM	-	-	DEC	QA-054AA-HA
	Open 3D	-	-	DEC	QL-0AFAE-AA
	Multimedia Services RT-DEC OSF-1	-	-	DEC	QL-20YA9-AA
	PCM Concurrent License	-	-	DEC	QL-2PDAM-3
	PCM Concurrent License	-	-	DEC	QL-2PDAM-3
	PCM Concurrent License	-	-	DEC	QL-2PDAM-3
	PCM Concurrent License	-	-	DEC	QL-2PDAM-3
	Network Applications Support	-	-	DEC	QL-306AE-AA
	PCM Layered Products	-	-	DEC	QT-2PDAM-D
	PCM Layered Products	-	-	DEC	QT-2PDAM-D
	PCM Layered Products	-	-	DEC	QT-2PDAM-D
	PCM Layered Products	-	-	DEC	QT-2PDAM-D
	PCM Documentation Kit	-	-	DEC	QA-MU1AA-G
	PCM Documentation Kit	-	-	DEC	QA-OLWAF-H
	OSF-BASE	-	-	DEC	QL-MT4AE-6X
	Kerberos	5B5			
	Npassword	1.2.4			
	TCP Wrappers	7.3			
	Tripwire	1.2			
FOS-EOC-12 (Console Manager)	Supplemental Services	-	-	DEC	FM-PC091-36
	Open 3D	-	-	DEC	QL-0AFAE-AA
	Multimedia Services RT-DEC OSF-1	-	-	DEC	QL-20YA9-AA
	PCM Concurrent License	-	-	DEC	QL-2PDAM-3
	PCM Concurrent License	-	-	DEC	QL-2PDAM-3
	PCM Concurrent License	-	-	DEC	QL-2PDAM-3
	PCM Concurrent License	-	-	DEC	QL-2PDAM-3
	Network Applications Support	-	-	DEC	QL-306AE-AA
	PCM Layered Products	-	-	DEC	QT-2PDAM-D
	PCM Layered Products	-	-	DEC	QT-2PDAM-D
	PCM Layered Products	-	-	DEC	QT-2PDAM-D
	PCM Layered Products	-	-	DEC	QT-2PDAM-D
	Kerberos	5B5			
	Npassword	1.2.4			
	TCP Wrappers	7.3			
	Tripwire	1.2			
FOS-EOC-12 Time Gateway (Software)	Operation and Technical Manual	-	-	CMA	TS2000
	There is no software associated with this unit.				

Table 4-1. COTS Software Inventory Listing (GSFC) cont.

Identification:	Component Description	Version	Patches	Vendor	Part Number
MSS-EOC-1 Printer (Software)	The printer contains firmware which is built in.				
MSS-EOC-2 Management Subsystem Workstation (Software)	WABI	2.1	-	SUN	724-2120-01
	SPARCompiler C	3.0.1	-	SUN	CC-S
	SPARCompiler C++	4.0.1	-	SUN	CPL-S
	SPARCWorks	3.0.1	-	SUN	SCC-P
	Solaris Operating System	2.4	-	SUN	SOL
	Solaris Media	2.4	-	SUN	SOLD-C
	DCE for Solaris 2.4	1.0.3a	-	SUN	BASE-SVC
	Support for DCE Base Services	-	-	SUN	BASE-SERV-SUPP
	X/Motif				
	RogueWave 6.1 Libraries				
	ClearCase Server & Client	2.1	2.0.3-119	Atria	
			2.0.3-101	Atria	
			2.0.3-139	Atria	
	Tivoli Client				
	Netscape Browser	2.02			
	DDTS	3.1.12			
	XRP II	v3.0			
	Crack	4.1			
	Satan	1.1.1			
	Npassword	1.2.4			
	TCP Wrappers	7.3			
	Tripwire	1.2			
MSS-EOC-3 Management Subsystem Server (Software)	WABI	2.1	-	SUN	724-2120-01
	SPARCompiler C	3.0.1	-	SUN	CC-S
	SPARCompiler C++	4.0.1	-	SUN	CPL-S
	SPARCWorks	3.0.1	-	SUN	SCC-P
	Solaris Operating System	2.4	-	SUN	SOL
	Solaris Media	2.4	-	SUN	SOLD-C
	DCE for Solaris 2.4	1.0.3a	-	SUN	BASE-SVC
	Support for DCE Base Services	-	-	SUN	BASE-SERV-SUPP
	X/Motif				
	RogueWave 6.1 Libraries				
	ClearCase Server & Client	2.1	2.0.3-119	Atria	
			2.0.3-101	Atria	
			2.0.3-139	Atria	
	Tivoli Client				
	Netscape Browser	2.02			
	DDTS	3.1.12			
	XRP II	v3.0			
	Crack	4.1			
	Satan	1.1.1			
	Npassword	1.2.4			

Table 4-1. COTS Software Inventory Listing (GSFC) cont.

Identification:	Component Description	Version	Patches	Vendor	Part Number
	TCP Wrappers	7.3			
	Tripwire	1.2			

4.2 Public Domain Software listing

FOS is distributed with a number of public domain software packages. This section lists the packages and their locations. Please refer to Appendix E for a disclaimer notice.

4.2.1 SUN Solaris

Path /tools/bin.

- emacs
- perf

Path /usr/local/bin

- AcroRead
- Mosaic
- ghostview
- gunzip
- gzip
- sudo
- tcsh
- xdiff
- xrn
- xv
- xvnews
- idl

4.2.2 DEC OSF 3.2

Path /usr/local/bin.

- emacs
- gzip
- gunzip
- sudo

4.3 FOS Custom Software

FOS custom software consists of a number of components. This section lists these components and provides a brief description of each. The software will be available for the following architectures:

DEC
    OSF 3.2

SUN5
    Sun Solaris

A file listing maybe generated from the delivered tar files using the tar -tvf command.

4.3.1 FOS Custom Software Version 1.00 Tar File Listing

The following listing provides the files generated by the build process and the installation process.

The top level directory is /fos/test/am1. All of the run time executables ar e located in the fos/test/am1/bin area. For the SUN platform, the executables are located in the sparc-sun-solaris2.4 subdirectory to /bin. (e.g., the DynamicPage executable is located at /fos/test/am1/bin/sparc-sun-solaris2.4)

The listings of the tar files follow:

(To Be Supplied)

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5. Non-Conformance Status

5.1 Known Problems with FOS

This section contains the list of problems closed (Section 5.2) and known problems (Section 5.3) as of 10/18/96 in the product. These problems were found and recorded during unit and integration testing and captured in the formal problem tracking system, Distributed Defect Tracking System (DDTS). The DDTS system generated the attached list of "closed" NCRs. This list has been reviewed by HITC management and the FOS system is considered to be acceptable for delivery at this time. The list includes the NCR ID, Title, Description, and Status. DDTS problem severity definitions, on a 1-5 scale, are defined as follows:

1 Catastrophic bug without workaround that causes total failure or unrecoverable data loss. Example: system crash or lost user data.

2 Bug which severely impairs functionality. Workaround might exist but is unsatisfactory. Example: can not use major product function.

3 Bug that causes failure of noncritical system aspects. There is a reasonably satisfactory workaround.
Example: user data must be modified to work.

4 Bug of minor significance. Workaround exists or, if not, the impairment is slight. Example: error messages are not very clear.

5 Very minor defect. Workaround exists or the problem can be ignored. Example: bad layout or misuse of grammar in manual.

5.2 FOS Non-Conformance Reports (Closed Status)

This is the first delivery of the software and this section is not applicable.

5.3 FOS Non-Conformance Reports (Open Status)

The following NCRs are liens against the FOS Version 1.00 delivery.

Problem id: **ECSed01923**
Severity: 2
Title: CMD ODF record difference
Problem: The number of CMD ODF records generated and the number of CMD ODF records read are not the same. DMS message indicates 1594 records generated and CMD message indicates 1593 records read.

Problem id: **ECSed01944**
Severity: 2

Title: ECL Directive PAGE CLOSE
Problem: ECL directive "PAGE CLOSE" caused Environment Controller, mini-Control Window and String Manager Jr. processes to crash. Had to rerun script to restart these processes.

Problem id: ECSed01948
Severity: 3
Title: 13th window in room
Problem: A room can contain between 0 and 12 windows in a single room. While defining a room, a 13th window was added without error. The system crashed when this room was recalled and the windows came up without a number in the title (e.g. EventDisplay[3] - the 3 was missing).

Problem id: ECSed01958
Severity: 3
Title: ECL Directive DROPOUT <tlm type>
Problem: ECL Directive DROPOUT accepted anything entered as the <tlm type>. Expected the tlm type would be restricted to only valid types.

Problem id: ECSed01960
Severity: 3
Title: Tlm ODF Gen Invalid CCSDS Header Mnemonic Name
Problem: During Telemetry ODF generation received the following message(s):
Invalid CCSDS Header Mnemonic name = buffer_sizeAdding parameter: PID=13
Invalid CCSDS Header Mnemonic name = expectpcketidAdding parameter: PID=19
Invalid CCSDS Header Mnemonic name = expectpcketidAdding parameter: PID=20

According to D. Peters (DMS), this is a valid NCR that requires a minor modification.

Problem id: ECSed01961
Severity: 3
Title: ODF Generation Results
Problem: Upon completion of ODF generation complete, the user receives a minimal amount of information as to the success of the generation. The process should generate ODF report or logfile that provides information to the user.

Problem id: ECSed01967
Severity: 2
Title: Spacecraft time field incorrect
Problem: When the decom process is running, spacecraft time field is displayed incorrectly (i.e. does not correlate to time output by the telemetry driver.

Problem id: ECSed01995
Severity: 3
Title: Search string option searches prior to APPLY

Problem: When Search option is selected on EventDisplay (versus Filter option), the search is initiated right away as opposed to allowing the user to input the string to search on and then invoking 'Apply'. The Filter option allows the user to input the string to filter on and then invoke 'Apply''. Would have expected Search to begin searching only after the user invokes 'Apply'.

Problem id: ECSed01998
Severity: 3
Title: Window numbers are wrong
Problem: If multiple EventDisplay windows are brought up they have a number, in brackets, in the title to indicate the number of windows showing with the same title. This number sometimes starts with three or five, not always one. Along the same lines, when a new room is entered, this number does not reset which gives an inacurate count of the number of windows showing.

Problem id: ECSed02225
Severity: 2
Title: Validation errors on command data"
Problem: Command data did not pass validation as expected. Command parameter word count did not match the number of command fixed data words.

Problem id: ECSed02389
Severity: 3
Title: Scripts are not in clearcase
Problem: Scripts supporting DMS database initialization are not in clearcase

Problem id: ECSed02393
Severity: 3
Title: Event definition include files using a /home directory
Problem: Event definition include files are being put in /home/dpeters, then copied by the subsystems. These need to be in a configuration controlled area.

Problem id: ECSed02394
Severity: 3
Title: Event ODF needs to be recompiled without debug
Problem: All code in the event ODF test needs to be recompiled without debug

Problem id: **ECSed02395**
Severity: 3
Title: FpTl Timeline appears to core dump on normal exit DEC
Problem: When the exit option on the first menu was selected on the timeline (runningon the HP), it appeared to core dump (core file was left over). Also the following message appeared on the screen:

X Toolkit Error: Object "tl" does not have windowed ancestor
inst fault=4, status word= 8, pc= 140045238

Problem id: **ECSed02406**
Severity: 3
Title: FpTl Data Buffer color change
Problem: On timon (HP), {will recheck on other platforms} When changing the color resources for the different activities and modes, the data buffer resource does not update immediately after clicking Apply in the color palette dialog. Does refresh after refresh of timeline.

Problem id: **ECSed02410**
Severity: 3
Title: FpTl Time scroll implementation incorrect
Problem: The time scroll bar jumps every 1/5 of 12 hours. (i.e.) if start at 00:00:00, then 02:24:00, then 04:48:00, then 07:12:00, then 09:36:00, then 12:00:00.

Because of this, the 5/10/30 minutes time intervals do not scroll properly, and the other time intervals do not scroll smoothly.

Problem id: **ECSed02436**
Severity: 3
Title: FpTl TimeLine's plan pool doesn't get updated for a new plan
Problem: We modified the timeline to use the plan pool to get new plans. But the plan pool in the time line never gets updated, so new plans are never seen. This only affects the filter scheduler.

Problem id: **ECSed02450**
Severity: 3
Title: FpTl SSR update and summation of data doesn't always work
Problem: The timeline doesn't always update or sum up the total solid state recorder usage for all of the activities that have been scheduled.

Problem id: **ECSed02452**
Severity: 2
Title: Executables and source code outside accepted directory structure
Problem: Executables and source code are being delivered outside the accepted directory structure guidelines - Code has not been inspected and unit tested and is treated as deliverable code - creatCmdActs and createCmds

Problem id: **ECSed02456**
Severity: 2
Title: FpTl Power Usage not showing usage correctly
Problem: Power usage representation on the timeline is not correct. Having scheduled an activity to represent power usage the power usage stayed as a flat line over the time frame of that activity. Power usage should have been shown as increasing.

Problem id: **ECSed02471**
Severity: 2
Title: FOS/NCC Communication via XDR
Problem: For the purposes of integration and test, this INCR should be classified as an enhancement. Currently, the RCM NCC Ground Manager process uses the FOS IPC mechanism to successfully communicate with the NCC Unit Test Driver and support integration and test efforts as needed. The RCM NCC Ground Manager will, however, need to communicate with the NCC as early as September 1, 1996 using the XDR format. XDR is not currently supported by the FOS IPC solution. When the RCM NCC Ground Manager software is modified to use XDR, the NCC Unit Test Driver will also require the upgrade so that integration and test efforts are possible between now and Spetember 1.

Problem id: **ECSed02487**
Severity: 2
Title: Use of 'hardcoded' variables will not support multi-mission\mode req
Problem: The use of environment variables and start-up script command line argumentsspecifying a spacecraft id (AM-1) or a mode id (operational, test, training) will not support multi-mission and multi-mode system requirements.

Level 4 Requirements:

F-FOS-00030
F-FOS-00035
F-FOS-00040

Problem id: **ECSed02488**
Severity: 2
Title: Use of 'hardcoded' communication port assignments
Problem: The use of hardcoded communication port assignments should be replaced with references to the FOS Services file(s) (for port assignments reserved for well known services or for multi-cast port assignments) or queries to the FOS Name Server (for point-to-point assignments registered for dynamic services).

Note: This NCR is related to ECSed02752.

Problem id: **ECSed02499**
Severity: 3
Title: FpAd only sends startup/shutdown messages
Problem: The Activity definer only sends startup & shutdown messages to the event handler. It should be sending messages whenever significant actions take place

Problem id: **ECSed02501**

Severity: 3
Title: FpBd only sends startup/shutdown messages
Problem: The BAP definer only sends startup & shutdown messages to the event handler. It should be sending messages whenever significant actions take place

Problem id: ECSed02502
Severity: 3
Title: FpLq only sends startup/shutdown messages
Problem: The Load Queuer only sends startup & shutdown messages to the event handler. It should be sending messages whenever significant actions take place

Problem id: ECSed02503
Severity: 3
Title: FpFs only sends startup/shutdown messages
Problem: The Aster Filter only sends startup & shutdown messages to the event handler. It should be sending messages whenever significant actions take place

Problem id: ECSed02504
Severity: 3
Title: FpGs only sends startup/shutdown messages
Problem: The General Scheduler only sends startup & shutdown messages to the event handler. It should be sending messages whenever significant actions take place

Problem id: ECSed02538
Severity: 3
Title: PAS Retreives only every 8th CMD from CMD PDB
Problem: PAS retrieves only every 8th command from the CMD PDB. This causes an exclusion of commands specifically called out in PAS related test procedures. PAS needs to modify software to retreive every command so that procedure checkout can continue.

Problem id: ECSed02548
Severity: 3
Title: Packet sequence number's offset and length is incorrect
Problem: While running decom, I sent to the decom process 20 packets created by thetelemetry generator. These packets were in sequential order from 0 to 19. When the decom process process these packets and returned the value of the packet sequence number, they were off and an incredibly high number. The decom process was supposed to return in sequential order the packet sequence number.

When I used the TLM group's own odf file, The sequence numbers returned were correct and in sequential order. This lead me to believe that the odf file generated by DMS is incorrect

Problem id:ECSed02562

Severity: 2
Title: Event archiver host hard coded in fos-services
Problem: fos-services files contain hard coded host name for events processes. The event processes should register with the name server and get host and port information from the name server.

Problem id: ECSed02563
Severity: 2
Title: FileMetaData has the paths for storing files incorrectly specified.
Problem: The paths that filemetadata uses are hard coded and incorrect. File meta data should lookup the environment variables to determine the correct path and then the ordering of the path needs to be corrected

Problem id: ECSed02570
Severity: 3
Title: RCM archive status needs to be displayable
Problem: The archive status for each process that has archive capability should be displayable.

Even though reconfiguration of the archive flag will not be possible until Release B, it would be helpful for the users to know when to expect archive output.

Problem id: ECSed02571
Severity: 3
Title: TLM archive status needs to be displayable
Problem: TLM needs to make the archive status displayable even though the capability to reconfigure the archive flags will not be provided until Release B.

This displayable information is necessary for the user to know when to expect archive output from a given application process that archives information in Release A.

Problem id: ECSed02592
Severity: 2
Title: The NCC Ground Manager process hangs on termination
Problem: When a logical string is being taken down, the RCM NccGroundMgr process hangs.

Problem id: ECSed02617
Severity: 2
Title: Repeater does not unregister from the name server correctly.
Problem: Repeater process does not unregister from the name server correctly when brought down and leaves an end point registered in the data base. The registered end point needs to be manually removed prior to running the start up scripts.

Problem id: ECSed02619

Severity: 3
Title: FOS-services file should be replaced for B1
Problem: Release A uses a file, FOS-services, to establish port numbers and hosts. A less cumbersome method needs to be found for Release B1.

Problem id: ECSed02625
Severity: 3
Title: Process for adding FOT-generated data needs to change workaround
Problem: The process for getting FOT-generated additions to the PDB into the database did not work for new cmd_vardata file.

Problem id: ECSed02643
Severity: 2
Title: Shutdown scripts do not completely bring down application software
Problem: The "kill processes" script does not completely bring down all application software processes started during testing. System shutdown procedures should be re-examined. Part of solution may be to implement periodic system reboots during integration testing.

Problem id:ECSed02644
Severity: 3
Title: FileMetaData and LoadCatalogServer incorrectly register w/NameServer
Problem: The FileMetaData and LoadCatalog Servers hard code their registration with the Nameserver. They should lookup the ops environment, use the spacecraft id, and the their process names to register with the name server. Some of this functionality is available in the baseclass FoUtAppl.

Problem id: ECSed02645
Severity: 2
Title: FileMetaData doesn't return status
Problem: The FileMetaData server doesn't return a status to indicate if files have been stored successfully or not. If they are not stored successfully then these files will not get archived. The user should be made aware of this situation.

Problem id: ECSed02660
Severity: 2
Title: Decom not supporting test and training modes
Problem: I tried to create both Realtime Test Strings and Realtime Training Strings. I expected it to work. Decom went down.

Note: Can’t test till P5.

Problem id: ECSed02662
Severity: 3
Title: Erroneous Event

Problem: Connected to the string when already connected. Event indicated that I couldn't connect as WS ALL when already connected. I was trying to connect as Standby, not WS ALL.

Note: Can't test till P5.

Problem id: **ECSed02666**
Severity: 3
Title: FpTl PAS Timeline Gives Unnecessary Debug TlRsEditor
Problem: When adding a new resource to the timeline to be displayed using the User Setup menu and Resources...submenu, the timeline processes give the following debug messages:

"FpTlRsEditor::applyChanges applying resource edits"
"FpTlRsEditor::applyChanges edits completed"

Problem id: **ECSed02679**
Severity: 3
Title: Micro Load Generation - Creates to many uplink loads.
Problem: For Micro Loads greater than 4K Words and that are exactly a 4K multiple. i.e. 4K, 8K, 12K... The Load partitioning results in a extra empty partition. The extra partition should not be generated.

Modified the FmLdMicroLoad Class to compute the number of loads taking into consideration exact multiples of the 4K load size.

Files affected:
/ecs/formal/fos/cms/FmLd/src/FmLdMicroLoad.C
/ecs/formal/fos/cms/FmLdAM1/src/FmLdAM1LoadUtilities.C

Problem id: ECSed02689
Severity: 2
Title: I & Q data received on the same port
Problem: The FOS_SERVICES file does not distunquish between I & Q Channels for the Decom port numbers. The Decom process currently uses one port number to process telemetry data.

For Release A, need to change the FOS_SERVICED file to provide discrete I & Q port numbers and modify Decom to use the appropriate port per its configuration (i.e., I or Q).

Problem id: ECSed02690
Severity: 3
Title: Decom is not processing all packets sent from the Generator
Problem: Decom reports missing packets, usually in groups of 6-8. The Driver was sending 1 telemetry packet every 2 seconds.

Problem id: ECSed02695
Severity: 2
Title: Missing String Connection Event
Problem: Currently, an event is not generated for a user being connected to a string. A user knows he/she is connected when the proper parameters are updated and/or all events are generated for all processes being generated for all processes being successfully configured.

Note: Can't test till P5.

Problem id: ECSed02696
Title: Repeater dies on multiple workstations
Severity: 3
Problem: RMS Repeater only comes up on one workstation, but not on multiple workstations.

(The Repeater sends reconfiguration messages to Mirrored Decom processes on the User Station. This capability was provided by RMS in Release A, but is not implemented until Release B by Decom. That is, reconfiguration of Mirrored Decom processes is a Release B capability.)

Problem id: ECSed02699
Severity: 3
Title: StringMgr aborts on Standalone U/S when processing "String Connect"
Problem: The RMS User Station StringMgr process aborts upon a user request for string connection when the User Station is in Standalone mode.

For Release A it is an operational constraint to prohibit the issue of the request for string connection when a User Station is in the Standalone mode. In Release B the StringMgr will reject a request for a string connection when the User Station is in Standalone mode.

(The RMS capability to support an "analysis replay request" is scheduled for Release B, but, is provided as an adhoc capability in Release A to support Off-line analysis request processing.)

Problem id: **ECSed02702**
Severity: 1
Title: RCM NccGroundMgr Connection to Archiver
Problem: The NccGroundMgr Archiver Proxy lost its connection to the Ground Telemtry Archiver when attempting to send a message to be archived.

Problem id: **ECSed02703**
Severity: 2
Title: Need Test and Training ODF directories created for TLM's ODFs
Problem: The TLM subsystem requires "test" and "training" directory structures for their ODFs. These directories should be the estabished the same as the "ops" ODF directory.

Problem id: **ECSed02706**
Severity: 3
Title: Add spaces to "GCMR DopplerCompInhibitmsdis denied" event
Problem: Spaces need to be added to this event message to make it readable.

Problem id: **ECSed02707**
Severity: 3
Title: Event numbers should be shown with the event message
Problem: Event numbers should be provided with event messages displayed on the Event Display and Control Window for to allow for additional information to be gathered regarding the event.

Such as, use the event number to search the Event Database.

Problem id: **ECSed02710**
Severity: 2
Title: Decom process does not issue initialization status event message
Problem: The Decom process does not issue event messages regarding the initialization status.

Problem id: **ECSed02711**
Severity: 2
Title: "cout" statements need to be coded as debug statements
Problem: All "cout" statements need to be coded such that they are turned on and off through the debug option.

Problem id: **ECSed02714**
Severity: 3
Title: command data block log files in dev directory
Problem: In rel A command data block files are logged in /net/beeper/fos/dev/am1/reports This is just a partial implementation of "archiving" and is used mostly for test validation purposes. In rel B full archiving will be implemented. Even when the software is being run from the "int" directory tree, the log file will continue to be written to the "dev/am1/reports" directory.

Problem id: **ECSed02715**
Severity: 3
Title: Command transfer frame sequence numbers not incrementing.
Problem: Command transfer frame sequence numbers are not incrementing properly when commands are transmitted.

Problem id: **ECSed02729**
Severity: 3
Title: Event Subsystem types are "None" are not valid types
Problem: Events are being sent with "None" as a subsystype, in addition to the S/C ID field NOT Sct to a S/C ID. The events display cannot display events with missing fields or unknown event types. These events should be sent according to the events definition specification. (Specific events are RCM & RMS)

Problem id: **ECSed02732**
Severity: 3
Title: msg prompting user to allow critical cmd needs mnemonic
Problem:

Problem id: **ECSed02733**
Severity: 3
Title: command sent event msg needs binary and mnemonic
Problem: When a command is sent an event message indicates that is has been sent and should include the mnemonic and binary (first 32 bits in ascii hex).

Problem id: **ECSed02736**
Severity: 2
Title: No submnemonic definitions can be found in the command odf
Problem: Command submnemonic definitions are not currently in the cmd odf, which are needed to fully test submnemonic processing.

Problem id: **ECSed02737**
Severity: 1
Title: IPC inconsistency causing process failures
Problem: Processes are experiencing IPC errors. Communications errors are occuringon 7/29/96 that were not occuring on 7/26/96. Questions are being raised as to when certain processes were recompiled with FOSCOMMON and placed in the /dev directory for testing. Also in question is the impact of possible changes to

FOSCOMMON that some processes rebuilt with and others did not. An exception is being thrown in telemetry - Based on the continous debug messages it seems as though the exception is being ignored.

Problem id: **ECSed02739**
Severity: 3
Title: Executable naming standard not followed
Problem: RCM executable names need to follow the FOS standard as FgXxName.

Problem id: **ECSed02740**
Severity: 3
Title: Executable name standards not followed
Problem: RMS executable names need to follow FOS standard as FrXxName.

Problem id: **ECSed02742**
Severity: 2
Title: Foscommon proxy makefile does not contain FdMt/make
Problem: Foscommon/proxy Makefile needs to be updated to include FdMt, FdDbLc, FdOe, FdOt, FdQm and FdTC builds. FdMt/make and DdDbLc/make Makefiles do run successfully but without them in the /proxy Makefile they don't get run and CMS will not build without them.

Problem id: **ECSed02743**
Severity: 2
Title: Function name changed from "Retrieve File" to "Retrieve"
Problem: RMS will not build with the function name change to Retrieve from Retrieve File in ODFTableProxy.

Problem id: **ECSed02745**
Severity: 3
Title: cltu placed in cdb event msg not appearing
Problem: When a CLTU is placed in a command data block, an event message should appear indicating such. It does not appear when expected.

Problem id: **ECSed02750**
Severity: 2
Title: Need method for distinguishing ground parameters from vehicle params
Problem: There is currently no way for existing alphanumeric display code to determine if a given PID is for a ground or a vehicle parameter.

Problem id: **ECSed02752**
Severity: 2
Title: Registering and retrieving from the Name Server correctly
Problem: Processes need to register with the Name Server with at least the process name, the spacecraft ID and the process type (DEV, INT, OPS, TEST). Lookups from

the Name Server by processes need to be requested based on the above three criteria at a minimum.

Problem id:ECSed02757
Severity: 2
Title: The CDE Window Manager should NEVER be used to test FUI Applications
Problem: The CDE Window Manager (Common Desktop Environment) is a different Window Manager than Motif. FUI has no requirements to work under CDE. FUI code is required to work under Motif. All FUI developers code and test under Motif. FUI developers have noticed several differences in how applications behave under CDE vs. Motif.

Since FUI has neither the time nor the requirements to make their applications run under CDE, all testing should be performed under Motif.

If an INCR is generated under CDE, against FUI, FUI will request that the problem be proven to exist under Motif before excepting the INCR. If, at some time in the future, FUI is given requirements (a big CCR) to work under CDE, then FUI code will be upgraded to work correctly under CDE.

Problem id: ECSed02762
Severity: 2
Title: EventLogger needs to connect and disconnect
Problem: The EventLogger creates a connection with the EventHandler when instantiated. There is a limit as to the number of processes that can be connected to a single process at the same time. EventLogger needs to connect when it sends an event and disconnect after the event is sent.

Problem id: ECSed02765
Severity: 3
Title: StringMgr needs Replay String Created Event
Problem: StringMgr needs an event to indicate that the Replay String has been created. A user knows its created when he/she sees the events for each process being configured.

Problem id: ECSed02766
Severity: 3
Title: StringMgr terminates when reading in an empty ODF
Problem: If StringMgr reads in an empty SysOdf_1.0 file, it will terminate.

Problem id: ECSed02768
Severity: 2
Title: StringMgr allows a valid GC to create string from an invalid GS WS.
Problem: A user needs to be on the list of valid Ground Controller's before creating a string. String Manager checks the list of authorized users, but not the list of authorized Ground Controller Workstations. Currently the only user that can create a string is a user that is in the gcuser.db file. However, a valid Ground Controller can create

a string on an invalid Ground Controller Workstation (A workstation that is not in the gchw.db file). StringManager needs to prevent this.

Note: Can't test till P5.

Problem id: **ECSed02776**
Severity: 2
Title: NameServer needs to throu an exception if connect can't be made
Problem: The NameServer needs to throw an exception if a process cannot connect to it. Currently, if the init function does not indicate that a nameserver is not present, then the process calling the init function will crash when it tries to access the nameserver endpoint.

Problem id: **ECSed02804**
Severity: 3
Title: FpAd Activity Definer created w/o name, then save as failed
Problem: specified new without a name for the activity, seleted AM1 resource. Once I defined the commands in the activity, I selected save as, so I could name the activity appropriately. The save as issued the following warning:

Save Failed: No activity or resource specified.

I could not save the activity. *Note:* This problem is fixed in RELEASE B1.

I modified the function FpAdAppl::newAct to check if the new activity name is a valid name. If the new name is blank or blank spaces, then an error message will pop up to let the user know that a valid name must be entered to create a new activity.

Now the Activity Definer forces the user to enter a name. This solves the problem of saving an activity without a name.

Reopen: This INCR was reopened for A2 at the request of Sharon Dennison.

Problem id: **ECSed02805**
Severity: 2
Title: FpTl Timeline - user resources not applied to timeline
Problem: Selected User Setup/Resources - and chose the resources I wanted to have on the timeline. Selected Apply & Ok. The resources selected were not applied to the timeline.

Problem id: **ECSed02806**
Severity: 3
Title: ATC load name incorrectly specified
Problem: Selected das for day 216. The load name indicated 218. This could be related to the RW time utility conversions. This was generated on day 215(?) (8/1/96)

We should probably be using the DAS id /version number. When multiple DASs are sent to cms the load files will be overwritten, because they will have the same name

Problem id: **ECSed02810**
Severity: 2
Title: The use of process type & mode are different between subsystems-EndPt
Problem: CMS uses OP_ENV to set the process type when registering with the name server. OP_ENV is set in the FosEnvVars file to indicate, dev, int, ops, test, training, etc. The ground script controller is looking for a process type equal to 3. I don't know what process type means to the ground script controller and the parameter server The parameter server uses process mode to indicate, ops, test, training, etc. using numeric values.

This NCR is related to ECSed02488 and ECSed02752.

Problem id: **ECSed02811**
Severity: 2
Title: TlmRetriever is not sending packets to the decom process
Problem: The decom process was up and runnning. In another window, the TlmRetriever was brought up and a file that was archived earlier was fed to it. The decom process was aware that a connection had been made to it and sat there waiting for packets until it timed out.

When I tried the decom process with the packet generator using the same point to point socket, decom received the packets and decommed them.

Problem id: **ECSed02812**
Severity: 1
Title: DMS Queue Mngr. needs shorter time lapse in reading consec. FaReAnal
Problem: After the DMS Queue Manager reads (receives) in a FaReAnalysisRequest From the Analysis Request Handler, it cannot read in the next FaReAnalysisRequest object until the decom process for the first request is started (approx. time = 12 minutes).

Problem id: **ECSed02813**
Severity: 3
Title: Throw infinite FoIpCommException error when another process diconnect
Problem: During Replay, the TlmRetriver connects to the decom process and sends the decom process data that has been archived. Upon completion of this, the TlmRetriever will disconnect itself from the decom process. When it does disconnect, a CommErr message is thrown. This should be thrown only once and the portal deleted, but the portal isn't deleted and the CommErr is thrown infinitely.

Problem id: **ECSed02819**
Severity: 3

Title: DMS Dependent On FUI and TLM Private Classes For ODF Generation
Problem: As a result of the "re-VOBing" effort, it was uncovered that DMS is dependent on both FUI and TLM private classes for some ODF generation. This goes against the rules that any code/class that is shared by more than one subsystem is common code, and must therefore reside in the common VOB. Some action must be taken by DMS, FUI and TLM to eliminate these dependencies.

It should be noted that in both of these cases, these ODF files are used exclusively by either FUI (SelectionFilter ODF) or TLM (Decom ODF).

There are two possible solutions:

1. The subsystem takes over responsiblility for the code to generate the ODFs. This would eliminate DMS's dependency on the other subsystems and give the subsystem's control of their own ODF files.

2. The FUI and TLM private code is moved to the Common Area. One thing to keep in mind is that this code is not really common. The only reason DMS must access this code is to generate the ODFs, which really means pulling the date pieces of data out of SYBASE. The ODFs are used exclusively by FUI or TLM. So this is not really a open and stuff common code issue.

Problem id: ECSed02821
Severity: 2
Title: Proxy needs to be asynchronous for GUI use
Problem: The FdDbTd proxy does an asynchronous send. Within a gui process, communications are required to be asynchronous after the window is managed.

Problem id: ECSed02822
Severity: 2
Title: FdDbTableDefSrv not started by DataServerStartup
Problem:Table Load Builder needs FdDbTableDefSrv to be started with A2_DataServerStartup.

Problem id: ECSed02825
Severity: 2
Title: Subsystem level build fails due to missing library
Problem: DMS subsystem level build fails due to missing library for FdDh. This library is built as part of /dms/common/make which was not included in the top level subsystem Makefile found under /dms. In an attempt to checkout the group level Makefile to add common/make, we found that the top level Makefile is a read only file and could not make the necessary change even with vobadmin trying to change the write protection. In order to proceed with the build, I built common/make seperately, then went back to complete the top level build.

Problem id: ECSed02833
Severity: 3
Title: FpLq Load Queuer did not use activities within DAS boundry
Problem: Brenda scheduled several activities on day 1996/220, timeline showed they were scheduled correctly. She then requested a DAS for 8/7/96 and none of the

activities appeared in the DAS. She then changed the request to be for 1995-1999 and the activities did appear.

Problem id: **ECSed02834**
Severity: 2
Title: Incorrect Syntax check result
Problem: When I did a Syntax check by using the CheckProcedureSyntax function of the FuCLParser class, I got a valid result for "CV ONtn" which is not a valid statement.

Problem id: **ECSed02835**
Severity: 3
Title: Environment Controller Does Not Use $BIN_DIR When Starting Processes
Problem: Environment Controller does not use the $BIN_DIR path when starting executables. As a result if EC is not started in the directory where the processes reside or the directory is not the "path" then EC will not be able to start the application.

A simple solution to this problem is for EC to use $BIN_DIR when starting the executables.

This is not critical because $BIN_DIR is automatically added to the "path" when FosEnvVars is sourced when running the startup scripts. However, that is a work around to EC's problem.

Problem id: **ECSed02839**
Severity: 3
Title: Environment Controller Does Not Register A Service With NameServer
Problem: The Envrironment Controller does not register a "Service" with the NameServer. It needs to do so.

Problem id: **ECSed02841**
Severity: 3
Title: Environment Controller Successive Pages Getting Wrong Position/Size
Problem: If a page is brought up, moved and/or resized, and then the same type of page is brought up in the same room, like two Event Displays, the second page will be moved and resized to match the first window. The second window should be moved and sized to its DEFAULT position/size.

Problem id: **ECSed02842**
Severity: 3
Title: Load Manager Does Not Have A Menu Bar
Problem: The Load Manager window is a persistent page that is manipulated by the Room Controller, therefore it should have a Menu Bar at the top of the page with File and Help pulldown menus. It should not be designed like a dialog box with "Close" and "Help" buttons at the bottom.

Problem id: **ECSed02843**
Severity: 3
Title: FUI Process Names Do Not Follow Naming Convention
Problem: Most FUI process names do not begin with FuXx (EC, DynamicPage, RegCtrlWin, etc.). FUI must rename the offending processes.

This renaming will effect data files, startup scripts, Makefiles, etc., so it should be done along with B1 development.

Problem id: **ECSed02844**
Severity: 3
Title: FoDebug Does Not Support RunTime Debug
Problem: FoDebug has yet to be modified to use FoCl (the Command Line parser) so that developers and testers can take advantage of the RunTime DEBUG option.

Currently developers can only use the CompileTime DEBUG. In order to turn it on or off a developer must recompile. The RunTime DEBUG option allows developers to turn DEBUG on at runtime. If the option is left off, no DEBUG.

The amount of DEBUG output from the processes in testing is overwelming at times, but critical at other times. It is also a major impact on performance. Developers and Tester deserve and need RunTime DEBUG.

Note : Estimated fix time: 1 man day.

Problem id: ECSed02845
Severity: 3
Title: FoIp Still Uses TRACE In Code
Problem: While debugging some code the other day I noticed calls to TRACE in FoIp. This has been replaced by the FOS standard FoDebug. All calls to TRACE must be replaced by calls to the FoDebug facilities. We can't have our "common code" out of step with the rest of our code.

Problem id: **ECSed02854**
Severity: 3
Title: Hard-coded filename
Problem: CmdControl currently saves a dumpfile (which contains a list of as-executed directives) using a hard-coded file name and default working directory. This should be changed to use environment variables.

Problem id: **ECSed02855**
Severity: 3
Title: Implement procedure controller proxy for KILL Directve
Problem: The KILL directive needs to be implemented to perform a KILL-procedure operation. This can be done by calling the procedure controller proxy from the FuClYaccy code.

Problem id: **ECSed02856**
Severity: 2
Title: Needs to add telemetry limits and states to PidOdfl.O
Problem: The Directive Builder is required to show the telemetry limits and states to the user. But, the Odf Directive Builder currently used does not include those data elements. The class FoUpParamData needs to be modified to include the telemetry limits and states and PidsOdfl.O needs to be rebuilt so that the Directive Builder could display the telemetry limits and states.

Problem id: **ECSed02857**
Severity: 1
Title: Grd Schd not saving historica data, table def incorrect for loads
Problem: the ground shedule process wasn't saving the previously generated ground schedule data

The table definitions were incorrect

Problem id: **ECSed02858**
Severity: 2
Title: RTworks Database Changes
Problem: The RtWorks database has to be in sync w/our database. If it is not built correctly, the FaRtDServer will not work. Currently, Judy Brown is the only person familiar with the database building proce

Problem id: **ECSed02860**
Severity: 3
Title: Randomly Fails to Send Request To Queue Manager
Problem: The FuAnHandler on a random basis, does not send the request to the Queue Manager. Resending the request appears to work.

For some reason the Queue Manager appears to hang.

Problem id: **ECSed02862**
Severity: 3
Title: Does Not Allow Only A User Statistics Request
Problem: The FuAnBuilder will not submit just a User Statistics request. All parameters requested in the user statistics dataset automatically appear in the request for a telemetry dataset.

Problem id: **ECSed02869**
Severity: 2
Title: Room Builder Missing Capabilities
Problem: Room Builder capabilities not provided in A2:

F-FUI-1100, 1105, 1110, 1120, 1130, 1145

Problem id: **ECSed02870**

Severity: 2
Title: Procedure Control Window Missing Capabilities
Problem: Proceduree Control Window not provided in A2:

F-FUI-06110, 06115, 06125, 06130, 06135

Problem id: ECSed02871
Severity: 2
Title: No Table or Graph Capabilities for A2
Problem: Tables/Graphs not provided in A2:

F-FUi-07335, 07340, 07350, 07355, 07380, 07385, 07390, 07391, 07392, 07398, 07410, 07605

Problem id: ECSed02879
Severity: 2
Title: Procedure Not Expanded in Command Control
Problem: The Ground Script Controller does not expand procedures when a START PROC directive is encountered. Instead, a Procedure Controller is activated, and ground script processing continues. This problem will allow multiple commands to execute at the same time.

Problem id: ECSed02880
Severity: 3
Title: Need Expert Advisor Directive for Release A
Problem: The Parser needs to add a directive for starting the Expert Advisor.

Problem id: ECSed02889
Severity: 2
Title: FUI Dynamic Pages Must be Rebuilt When ODFs are Generated
Problem: Since the PIDS currently can change when an ODF is rebuilt, there needs to be a mechanism to rebuild any Dynamic Page definitions that are affected by PID changes.

If PIDS are never changed/reused (this is the current design), then this problem will be resolved.

Problem id: ECSed02892
Severity: 2
Title: fos_events definition table not populated on server BABS
Problem: Could not generate events ODF while logged onto GOO GOO as fostest1. It was determined that the fos_event definition table was not populated on BABS. Currently, it does not appear a procedure or policy exists for making sure event definitions are copied from one database server to another.

Also, (not sure if related), received messages during event ODF generation that 'include files' reside/generated in /home/dpeters and ODFs being generated in fos/test/am1.../ Any message with /home/dpeters in it causes concern!!!!

Problem id: **ECSed02904**
Severity: 2
Title: Packet Time and Parameter Time Stamp not available from FoPv...
Problem: The FoPvParameterValue::Time() function does not return the valid parameter time stamp. In order for Analysis to satisfy its requirements, this time must be available. Also, the parameter indicating the value of the current packet time must be updated first by the Parameter Server / Parameter Monitor inorder for Analysis to correctly process a packet.

Problem id: **ECSed02905**
Severity: 3
Title: DMS make.options shouldn't use /ecs/formal/fos/dms
Problem: File /ecs/formal/fos/dms/make/make.options specifies the dms path - /ecs/formal/fos/dms - in defining various symbols, instead of using the SUBSYSTOP variable which is defined in the dms .buildrc. As a result, if the path changes - as it does when dms is moved to the new vob, and the path becomes .../dms# - both the .buildrc and the make.options have to be modified.

For example, the make.options contains the line

DMSEVTODFINCDIR = /ecs/formal/fos/dms/EventOdf/include

Instead, this line should be

DMSEVTODFINCDIR = $(SUBSYSTOP)/include

Problem id: **ECSed02906**
Severity: 3
Title: TLM make.options shouldn't use /ecs/formal/fos/tlm
Problem: File /ecs/formal/fos/tlm/make/make.options specifies the tlm path - /ecs/formal/fos/tlm - in defining various symbols, instead of using the SUBSYSTOP variable which is defined in the tlm .buildrc. As a result, if the path changes - as it does when tlm is moved to the new vob, and the path becomes .../tlm# - both the .buildrc and the make.options have to be modified.

For example, the make.options contains the line

TLMDCINCDIR = /ecs/formal/fos/tlm/decom/include

Instead, this line should be

TLMDCINCDIR = $(SUBSYSTOP)/decom/include

Problem id: ECSed02908
Severity: 2
Title: Inconsistent methods for finding Odf files.
Problem:In order to determine the proper Odf file within a multi mission environment it is necessary to combine an environment path name (ie. ops, test, dev) with a space craft id (ie. AM1, PM1). Currently

Problem id: ECSed02917
Severity: 1
Title: There is no set function for myPacketTimePID.
Problem: In the FoPmParameterMonitor class there is a member myPacketTimePID which is protected. There is no set function for this member variable. The Analysis Request needs to set this member variable so t

It seems the changes have been made, but they have not been placed in the new FosCommon VOB. Without this change, ANA cannot even compile the FaAcCruncher.

Problem id: ECSed02933
Severity: 1
Title: ParmDataOdf does not handle Analog Times, Units are invalid
Problem: The new ParmDataOdf (created on 8/14/96) has the following problems:

Analog times are now treated as analog integers.

There are duplicate entries for ground and system parameters.

The units field is not properly set.

FUI was able to successfully test with the previous version of this odf:
ParmDataOdf_1.0.aug14

Problem id: ECSed02934
Severity: 2
Title: Cannot start a dynamic page for a string that does not exist
Problem: If a user attempts to start a dynamic page that by default connects to a string that does not exit locally (i.e., the user has not connected to the string), then the page and EC abort.

Problem id: ECSed02935
Severity: 2
Title: EC must automatically update its page list when new pages are created
Problem: Currently, a new page definition (created via the Display Builder) is not recognized by EC until the process is restarted.

A manual workaround using a script generates the new pageUser.dat file, but EC has no way of re-reading this file once it has been started.

Problem id: **ECSed02958**
Severity: 3
Title: F-DMS-00360 not completely satisfied in release A2
Problem: F-DMS-00360 is mapped to A2 and states that the EOC shall provide the capability to perform validation on modifications to the PDB definitions. However, F-DMS-00215 and F-DMS-00230 provide the capability to actually modify the telemetry and command PDB and are not being satisfied until release B1.

How can you claim that your software successfully validates PDB modifications in A2 when the PDB cannot be modified until B1? SNAP OUT OF IT!!!!!!

Problem id: **ECSed02960**
Severity: 3
Title: make.* files use hard path instead of SUBSYSTOP
Problem: In the foscommon subdirectories most make* files define symbols using hardcoded paths for /foscommon instead of using the SUBSYSTOP variable defined by the .buildrc file. As a result, if the path name changes, as it does in the revobbing effort, the path needs to be changed in all of these files. Instead, the make.* files should use the SUBSYSTOP variable in these definitions, so if the path changes the only change that is needed is to change the .buildrc file..

Problem id: **ECSed02974**
Severity: 2
Title: Real-Time Server Won't Come Up In "INT"
Problem: The Real-Time Server won't come up in "INT" from "fosint3". Almost all processes have been started, and then the StringMgr starts taking them down. Through all of this, the Data Server has been verified to be healthy.

The outputs from the Data Server and the Real-Time Server can be found in:

/home/fosint3/RealtimeServerProblems/
dataServer.log
realtime.log

Problem id: **ECSed02975**
Severity: 2
Title: Decom Is Using 20+% Of The CPU
Problem: Decom on the Real-Time Server and the User Station has been using over 20% of the CPU once the packet generator is turned on. If two packet generators are running, then the two Decom processes eat up 40+% of the CPU. Here is output from a test:

```
sneezer{fosint2}1: ps aux
USER     PID %CPU %MEM   SZ  RSS TT       S    START  TIME COMMAND
fosint2   9272 19.8 11.224352 6996 pts/3    R 15:43:15  7:15 FtDcDecom -sid 100 -sc
am1 -ttype 3 -ctype 0 -chtype 2 -rate 1
fosint2   9268 19.4 14.825864 9256 pts/3    R 15:43:14  7:59 FtDcDecom -sid 100 -sc
am1 -ttype 2 -ctype 0 -chtype 1 -rate 2
```

```
fosint2   9251 13.5  4.8 5564 2996 pts/3    R 15:42:12  4:44 FoPsParameterServer -sc
AM1 -sid 100 -dbid 1.0 -state 1 -mode 1 -psi 1 -chtype 1
fosint2   9254 12.6  2.8 5148 1748 pts/3    R 15:42:32  4:50 FoPsParameterServer -sc
AM1 -sid 100 -dbid 1.0 -state 1 -mode 1 -psi 1 -chtype 2
fosint2   9344  9.0  5.6 4328 3508 pts/4    R 17:15:47  0:11 A2tlm
fosint2   9343  8.6  3.0 2640 1880 pts/5    R 17:15:14  0:19 A2tlm
```

Problem id: **ECSed02976**
Severity: 2
Title: Need to Analyze Parameter Server Performance
Problem: ParameterServer on the Real-Time Server and the User Station has been using over 10% of the CPU once the packet generator is turned on. If two packet generators are running, then the two ParameterServer processes eat up 20+% of the CPU. Here is output from a test:

```
sneezer{fosint2}1: ps aux
USER       PID %CPU %MEM    SZ  RSS TT       S    START  TIME COMMAND
fosint2   9272 19.8 11.224352 6996 pts/3    R 15:43:15  7:15 FtDcDecom -sid 100 -sc
am1 -ttype 3 -ctype 0 -chtype 2 -rate 1
fosint2   9268 19.4 14.825864 9256 pts/3    R 15:43:14  7:59 FtDcDecom -sid 100 -sc
am1 -ttype 2 -ctype 0 -chtype 1 -rate 2
fosint2   9251 13.5  4.8 5564 2996 pts/3    R 15:42:12  4:44 FoPsParameterServer -sc
AM1 -sid 100 -dbid 1.0 -state 1 -mode 1 -psi 1 -chtype 1
fosint2   9254 12.6  2.8 5148 1748 pts/3    R 15:42:32  4:50 FoPsParameterServer -sc
AM1 -sid 100 -dbid 1.0 -state 1 -mode 1 -psi 1 -chtype 2
fosint2   9344  9.0  5.6 4328 3508 pts/4    R 17:15:47  0:11 A2tlm
fosint2   9343  8.6  3.0 2640 1880 pts/5    R 17:15:14  0:19 A2tlm
```

Problem id: **ECSed02977**
Severity: 2
Title: Decom Is Running Out Of Memory
Problem: On two consecutive runs, the Decom processes on the Real-Time Server ran out of Memory and shutdown. This caused the Real-Time Server to shut down. This also happened to the Decom processes running on a User Station connected to the Real-Time Server. The output from the Real-Time Server can be found in:

/home/fosint2/decom_crash2.txt

Problem id: **ECSed02978**
Severity: 3
Title: Removed invalid parameters from tlm_rylim_pdb.
Problem: The problem occurred during telemetry ODF generation. The software developer noted an inconsistency with the parameters defined in the parameter description table and the parameters defined in the limits table. Parameters that did not exist in the parent table, the parameter description table, were not being deleted during the validation process from the limits table.

Problem id: **ECSed02979**
Severity: 3
Title: Add parameter types to the FOS Pids table

Problem: Parameter types did not exist in the FOS Pids table which are required for FUI.

The FOS PIDs within the multiple database systems currently supported bcame incompatable due to the changing environments in which they exist. The intended functionality of the FOS PIDs is that they would never change once assigned in their operational environment. It became apparent there was a need to keep the PIDs consistent between the systems to support FUI display pages. Display pages use the assigned PIDs and therefore need to be consistent between systems so they can be used on mutiple systems.

Problem id: ECSed03000
Severity: 1
Title: TLM Reads ODF Files From Directories Outside Of INT or DEV
Problem: Currently TLM reads its ODF files from the

/fos/ops/am1/odf or
/fos/training/am1/odf or
/fos/test/am1/odf directory, instead of the

/fos/int/am1/odf or
/fos/dev/am1/odf directories.

As a result of the current TLM architecture, there is no way to keep the DEV, INT, and TLM ODFs seperate. Only by chance is the test environment separate from DEV and INT. This means that whenever changes are made to the TLM ODFs for DEV, they imediately effect INT, and visa versa.

Problem id: ECSed03008
Severity: 3
Title: FpAd Activity Name Erroneously Appears on Delete Screen
Problem:

Problem id: ECSed03009
Severity: 3
Title: FpAd Delete screen has a blank line that is selectable
Problem: If no activity is selected and the "Delete" option is selected from the Edit menu, the selection list on the delete screen contains a blank field that is selectable.

Problem id: ECSed03010
Severity: 3
Title: FpGs freezes if out-of-range parameter entered and OK button pressed
Problem: Selected an activity to be scheduled on CERES FORE resource that has 3 commands (from command database genereated on 8/20/96). The 3 commands were:

CDH_DISABLE_CT1PBSR1
FSW_INITIATE_ATCSCC1
GNC_DUMP_ST2BLOCK

Attempted to modify command parameter in GNC_DUMP_ST2BLOCK before scheduling. Specified a value of 65535.00001 for the ADDR parameter and then hit the "OK" button. This causes parameter window to disappear and everything on the main general scheduler window is frozen. The only thing to do at this point was to kill the process. Workaround is to enter a valid value (within the range) or to hit the "APPLY" button after entering incorrect (out-of-range) value.

Problem id: **ECSed03013**
Severity: 2
Title: Create String Fails for directive with many parameters.
Problem: FoEcATC, FoEcRTS, FoEcRealTime Directives will "die" when a directive with many parameters calls the CreateString Function.

The fix is to have the software dynammically allocate the character array before calling the sprintf function.

Note: this will cause the recompile and relink of many subsystems.

Problem id: **ECSed03015**
Severity: 1
Title: QueueMgr trying to write scratch files to /int/bin/sp...
Problem: The QueueMgr is saving and restoring the Analysis Request to a scratch file before it sends it to the Request Manager. Because, there are no write permissions for probably anyone but Scott, this file

Problem id: **ECSed03018**
Severity: 2
Title: FpGs gives "no event found" message for acts sch. using events
Problem: Scheduled an activity on the "AM1 Communication" resource using General Scheduler. Used a start event "TDRS-1 LOS", orbit 5, seq. 1 and stop event "TDRS-1 AOS", orbit 5, seq. 1. Got an error message saying "No event was found for the given Start Event entries". However start and stop events used were shown on the timeline.

Problem id: **ECSed03020**
Severity: 3
Title: FpGs error message dialog has "myMsgDialogShell" for title
Problem: After running case for error detected in NCR 3018, noticed that error message dialog box that gave message "No event was found for the given Start Event entries" had "myMsgDialogShell" as title of dialog box.

Problem id: **ECSed03021**
Severity: 3
Title: FpTl doesn't give shutdown message upon exit
Problem: Upon shutting down the timeline, an event message was not generated for shutdown.

Problem id: **ECSed03027**
Severity: 4
Title: FpTl Resource List Not Alphabetized
Problem: When adding a resource to be displayed on the timeline from the list of available resources (under "User Setup" and submenu "Resources..."), it would be helpful if the list (under "Available Resources") were in alphabetical order to find it easier.

Problem id: **ECSed03028**
Severity: 3
Title: FpTl Help button doesn't appear in right position on Menu Bar
Problem: Help button doesn't appear in rightmost position on menu bar.

Problem id: **ECSed03032**
Severity: 1
Title: Command Control and CMD Format are out of sync
Problem: The Ground Script Controller and the Command Format processes are not in sync with respect to message ids. Ground Script Controller sends msg id n, but CMD Format returns msg id n+1 on the status.

The Ground Script Controller hangs waiting for the response for msg n.

Problem id: **ECSed03033**
Severity: 3
Title: Manual directives are inserted before the current directive
Problem: When manual directives are entered, they are inserted into the ground script before the current directive, even if this directive has already been sent.

Manual directives should only be inserted prior to the current directive if the directive has not yet reached its execution time.

Problem id: **ECSed03037**
Severity: 3
Title: Table Load Builder does not handle empty table template response
Problem: Table Load Builder does not handle the situation where an empty container of table templates is returned by the TableDefServer.

The container was empty because the data base had not been populated.

Problem id: **ECSed03039**
Severity: 2
Title: Proc Bldr flags valid syntax errors on the line following the error.
Problem: Procedure Builder fails its syntax check when ther are no apparent errors.

Problem id: **ECSed03062**
Severity: 1

Title: FpCf Not Saving Allocations Correctly
Problem: Scheduling is performed and activities are successfully scheduled within the planning and scheduling system. If the resource model is brought down and brought back up, it can't come all the way up and subsequently dies.

Problem id: ECSed03064
Severity: 3
Title: FpGs Core Dumps Upon Parm Modification, Schedule, Parm Modification
Problem: Run the General Scheduler and choose an activity on a resource that contains a modifiable parameter (preferably an integer or float value). Go to the Command Parameters... option beneath the Edit menu. Select the command containing the modifiable parameters and then select one of the parameters in the Parameters window in the lower left corner. Modify this parameters value by specifying a valid value in the Current Value text field beneath the Parameter Type label. Hit the Apply button first and then hit the Ok button. The Parameters window disappears. Now schedule the activity containing the command with the modified parameter. Go back to the Command Parameters window and modify a parameter within the same command as before. As soon as the Apply button and Ok button are pressed the General Scheduler dies.

Workaround: After scheduling the activity with the command that contains the modified parameter, do not immediately update a parameter field for the same activity. Schedule or modify a command parameter for a different activity.

Problem id: ECSed03065
Severity: 3
Title: . buildrc references /home/jbrown
Problem: The ana .buildrc contains the line

source /home/jbrown/rtinit.csh

All files needed to build FOS should be in clearcase; the rtinit.csh should be checked into clearcase and this line in the .buildrc changed.

Problem id: ECSed03066
Severity: 2
Title: Dynamic Page does not display ground tlm parameters
Problem: The Dynamic Page process checks for limit and status for ground parameters. Since these do not exist, a null pointer is returned. This causes the dynamic page to crash.

Problem id: ECSed03079
Severity: 3
Title: FoIpProxyBase Deep Copy Constructor isn't very deep.
Problem: The FoIpProxyBase class contains a deep copy constructor that doesn't create a new portal for the attribute myPortal. This was crashing FrGrStringMgr. After talking to Ken Fregeolle, I learned that we shouldn't be using any copy constructors for the proxies. Since we shouldn't use them, and there's problems

with them if we do, I suggest that we remove the copy constructors from any proxy base classes. Otherwise, they may be used in future development and cause problems later.

Problem id: **ECSed03081**
Severity: 3
Title: Netscape FOS Database Page does not allow access to Test Database
Problem: FOS Databases Page on Netscape provides access to Dev Database and Int Database, however, access to the Test Database is not available. Access to BABS should exist in the same way that access to Hamilton and Montana is made available.

Problem id: **ECSed03096**
Severity: 3
Title: Motif appearance doesn't look like that of Integration
Problem: Appearance of Motif displayables looks different from that of Integration Test area at the factory. Fonts are too large to appear in text boxes, colors are different, resolution is different.

Problem id: **ECSed03122**
Severity: 1
Title: Code changes to avoid problem from FuRmPage
Problem: It was found today that CmdControl could not come up due to a bug in FuRmPage.Init() function. Since FuRmPage fixes are not available and won't be available for a few days, a change to CmdControl code is necessary to avoid the FuRmPage problem and allow testing of Cmd Control/FuGsGround Control.

The part of code change is FuCcMain.C. The change should go into patch 3. The code changes need not to be backed out because it can work with the non-fixed and fixed FuRmPage.

Problem id: **ECSed03123**
Severity: 3
Title: FpAd allows complex activity to be defined using itself
Problem: Activity Definer allows complex activity to be defined using itself. This recursive activity would cause problems.

Problem id: **ECSed03126**
Severity: 3
Title: Real-Time Server software must be up before User Station software
Problem: RMS String Manager software executed on a User Station is dependent on the RMS String Manager software executed on a Real-Time Server. If a User Station is started before the Real-Time Server, it must be re-started after the RTS is up in order for proper communication between them to be established.

Problem id: **ECSed03127**
Severity: 2

Title: New Event definitions not part of Event ODF generation process
Problem: New event definitions added to event database by developers as part of A2_P2 patch were not captured before the Event ODF was regenerated. As a result the new events are not displayable.

A change to the build/odf generation process is needed so that new event definitions are not left out of patches/deliveries in the future.

Problem id: ECSed03130
Severity: 3
Title: PAS Makefile does not include makes for st_cmdActs and st_cmds
Problem: In baselining all FOS s/w files, there are two executables used to process database files act.db and command.db within PAS.

The specific ClearCase pathnames are:
/ecs/formal/fos/pas/fosscripts/scripts/config/make.cmd
/ecs/formal/fos/pas/fosscripts/scripts/config/make.cmdActs

These two makes should be included in the PAS Makefile, to ensure any changes to the source files

/ecs/formal/fos/pas/fosscripts/scripts/config/createCmds.cc
/ecs/formal/fos/pas/fosscripts/scripts/config/makeCmdActs.cc

get propagated from ClearCase out to the /dev, /int, /test environments.

Problem id: ECSed03132
Severity: 3
Title: filename column in database is not long enough
Problem: The file_name column in the database table file_meta is not big enough to hold all of the characters of a long file name. This column needs to be at least 6 characters longer.

Problem id: ECSed03136
Severity: 3
Title: Does not Build FaDrReaderDriver test driver
Problem: The test driver FaDrReaderDriver, used to read datasets, does not build during normal analysis subsytem make.

Problem id: ECSed03142
Severity: 3
Title: copy failed for File Meta
Problem: When the dms file meta software tries to copy an image and load file from the load catalog, a message appears indicating the copy command does not have the correct syntax

Problem id: ECSed03143

Severity: 1
Title: FdDbOdfTable dies on Goddard User Station
Problem: When starting a User Station at Goddard, the FdDbOdfTable process dies. Just before going down a VENDORLIB error appears. Without the FdDbOdfTable process, the user is unable to create a string because RMS is unable to request the current database ID.

Problem id: ECSed03144
Severity: 3
Title: Don't send event 7094 so many times
Problem: Event 7094 is sent by StringMgr which indicates that the StringMgr is looking in the NameServer for an EndPoint. Sending it for every NameServer query is overkill.

Problem id: ECSed03152
Severity: 2
Title: FuRmPage.Init() overwrite application shell ptr
Problem: CmdControl could not come up. A FuRmPageNullPtrError error was received.

Found that FuRmPage.Init() overwrites the application shell ptr passed to the constructor (if application shell did not get passed in again through Init()).

Problem id: ECSed03154
Severity: 3
Title: Queue Manager can send Blank FaReAnalysisRequest
Problem: The DMS Queue Manager saves each FaReAnalysisRequest is receives to a file. If the directory permissions allow no writing, then the QueueMgr will read a blank request from a non-existent file when it sends the request to the Request Manager. The FaRmRequestManagerProxy should check that a request valid before it sends it. Also, even though theoretical reach the FaAcCruncher, it does not clearly state to the user that the request was aborted because there was no data in it

Problem id: ECSed03155
Severity: 3
Title: UserStats Dataset name
Problem: The FaReAnalysisRequest has a member RWCString intended to hold the filesname for the Userstats filename. The FaAcCruncher will append a ".stats" string to the filename, so the filename for the TLM dataset may be suffucient. However, the best solution is to give the user the option to use a different name, and then just use the TLM dataset filename if the USer Stats filename is blank. This is what the FaAcCruncher will do, but the FuAnBuilder needs to eventually give the user the option to chose their own name.

Problem id: ECSed03164
Severity: 3
Title: Variables missing in format event msgs

Problem: Variables, such as command mnemonic, do not get displayed in the command Format task event messages.

Problem id: ECSed03175
Severity: 3
Title: StringMgr allows CA before connecting
Problem: StringMgr allows a user to take Command Authority before the user is connected to the string as mirrored.

Problem id: ECSed03176
Severity: 3
Title: CM and document operator .cshrc and .Xdefaults
Problem: Environmental files, such as .Xdefaults and .cshrc, which contain definitions needed by a FOS operator's account need to be placed under CM and documented. The documentation - possibly in the User M

Problem id: ECSed03178
Severity: 2
Title: Missing .cshrc for EOC Web Browser
Problem: Need Web Browser .cshrc files over at EOC and in CM.

Problem id: ECSed03180
Severity: 3
Title: Calculate pid in FOS Database via trigger
Problem: The fos_pid field in the am1_fos_ops database fos_pids table is currently defined as an identify field so that the value gets calculated each time a record gets inserted. We learned in a Sybase training class that you can end up with large gaps in the numbering if the system crashes. I recommend that we create this value with a trigger.

Problem id: ECSed03183
Severity: 3
Title: Loss of FOT changes in the FOS Database
Problem: When I&T data is loaded into the unvalidated tables, the tables are truncated prior to the load. The FOT data should not be deleted from these tables, and therefore a delete should be used instead.

During the PDB Validation process, the FOT source field in the PDB tables is not selected during the validation process when moving data between the am1_fos_unv and am1_fos_val databases. It is therefore marked as 'I&T' when moved into the am1_fos_val database. It needs to be selected so that this info is retained in the am1_fos_val and am1_fos_ops tables for reporting purposes.

Problem id: ECSed03188
Severity: 1
Title: Need test drivers in the EOC.

Problem: Three test drivers are needed in the EOC in order to continue tests. The three test driver are FutsDriver, TestReader, and TestEventDriver. FutsDriver is needed to test all functionality of time selector (FUI 2040A), TestReader is needed to read the datasets created during the Analysis tests, and TestEventDriver is needed for FUI 2000A and EVT 2000A.

Problem id: ECSed03189
Severity: 1
Title: Netscape scripts need to be put in the EOC
Problem: The scripts used to access the database through Netscape need to be copied to the EOC. This is needed to view the name server and to see past event messages.

Problem id:ECSed03208
Severity: 2
Title: Can not archive GCMR messages.
Problem: During GCMR processing, after entering the first GCMR directive, the Event Display displayed: NCC Telemetry Archiver detected data dropout.

From this point on, whenever FgGmNccGroundMgr tried to archive a GCMR message, the Event Display displayed: FoIpCommExcept was caught, socket error, error = broken pipe.

Problem id: ECSed03218
Severity: 1
Title: Test environment is configured incorrectly.
Problem: The directories in the EOC do not have write priviledges.

Problem id: ECSed03219
Severity: 2
Title: ODF files are inconsistent between spacecraft Telemetry and display
Problem: The ParmDataOdf_1.0 file lists all ground telemetry parameters as analog integers although real-time processes may know to treat them as strings, reals, and ints.

Also, the PIDs for parameters in the database are different from "int", "dev", and "test".

Problem id: ECSed03230
Severity: 3
Title: TLM (only) Filter Option Not Working
Problem: When selecting the TLM (only) Filter Option in the Event Display Window, Both TLM and PAS events are displayed. The expected result was TLM events only.

Problem id: ECSed03233
Severity: 3
Title: Event Display Not Displaying All Events

Problem: The Event Display Window will only display events that have occured after the window has been displayed. It will not show previous events that have occured prior to the opening of the window.

Problem id: ECSed03234
Severity: 3
Title: Saved Pages Not Displaed When Called
Problem: When issuing a directive to call-up a previous saved page from the ECL directive line in the Control window no output is received. Expected result is to have the called-up page displayed on the terminal screen.

Problem id: ECSed03237
Severity: 3
Title: ProcessPms scripts writes to incorrect file
Problem: ProcessPms script writes its output to userPage.dat.

It should write its output to pageUser.dat

Problem id: ECSed03254
Severity: 3
Title: ECL Directive Selection Field Missing
Problem: The 'ECL Directives' selection from the options menu resulted in an empty selection field. Expected a list of valid ECL Directives for inclusion in the activity being built.

This may be a release B capablitiy!?

Problem id: ECSed03256
Severity: 3
Title: ECL Directive input event echo/status
Problem: Upon entering an ECL directive, expected an event 'echo' of the directive input and some type of status event regarding the result of the directive.

Not sure if specific level 4 requirements exist for this however, this is historically how ECL (STOL) directives have worked on past projects.

Problem id: ECSed03257
Severity: 3
Title: Event Display messages not color coded
Problem: Event Display page does not use color coding to report event severity. Control Window does use color code, however, only displays 3 most recent events and events scroll by rather fast. FOT would refer to Event Display for events that have scrolled past.

Problem id: ECSed03258
Severity: 3

Title: Test Tools not available at EOC
Problem: Event driver, FUI time selector driver and ANA data reader driver not available at the EOC. Did not get copied over with software migrated from mini-EOC.

Problem id: ECSed03261
Severity: 3
Title: List command description in Activity Definer
Problem: List command description along with the command mnemonic in Activity Definer Tool.

This NCR has been accepted on an 'enhancement' basis.

Problem id: ECSed03262
Severity: 3
Title: Incomplete command list for MODIS
Problem: Activity Definer Command Window listed only 2 of 13 expected commands. Commands may not of passed PDB validation for various reasons. In which case this is not a software problem.

Problem id: ECSed03263
Severity: 3
Title: Non-MODIS commands in MODIS cmd list
Problem: Activity Definer Command Window listed many non-MODIS commands and allowed these commands to be included in the MODIS activity.

Problem id: ECSed03264
Severity: 3
Title: Missing Date/Time Format in Activity Definer
Problem: In many of the Activity Definer windows, there is no indication as to the required format for entering the date and time. Formats should be included in the window. Currently, the user only receives the correct format after entering an erroneous format.

Problem id: ECSed03265
Severity: 3
Title: Error when an activity Event is selected
Problem: In the 'Activity Scheduling Information' window, an error message results when an Event is selected (e.g. Sunrise, Sunset).

Problem id: ECSed03266
Severity: 3
Title: 'Apply' Confirmation message
Problem: User does not receive a confirmation that the 'Apply' option executed successfully in most of the PAS windows.

Problem id: **ECSed03267**
Severity: 3
Title: Missing MODIS Modes
Problem: In 'Modes' window for MODIS, 'Calibration/SD View' and 'Calibration/SRC' were not listed as available modes. Test conductor expected them to appear in the list.

Problem id: **ECSed03268**
Severity: 3
Title: Commands not listed in alphabetical order
Problem: Activity Definer Command Window displays commands that are not in alphabetical order. Given that all subsystem/instrument commands are listed together and no search capability is available, alphabetized order is necessary.

Problem id: **ECSed03269**
Severity: 3
Title: Incorrect Window Titles
Problem: 'Activity List' window incorrectly titled 'BAP Definer'
'Scheduling Info' window.....titled 'BAP Definer'
'Command Parameters window.....titled 'BAP Definer'

Problem id: **ECSed03270**
Severity: 3
Title: 'Save As' file not displayed
Problem:

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Appendix A. Build/Installation Instructions

This appendix describes the necessary installation/build procedure which will be used for installing the FOS custom software released by the CM at the various DAACs. This procedure is based on the assumption that the necessary tar files have been copied (using ftp) from the CM directory to the directories on the FOS machine where the installation is to be done.

A.1 Build Process

The FOS custom software build process is performed in order to generate a new set of executables. These files are subsequently loaded into specific workstations and file servers in order to meet the functional requirements of the FOS program.

The build process inputs consist of the following:

1. ClearCase views for each sub-system
2. The correct file versions dictated by the views' configuration specification
3. The pertinent NCRs that were addressed by the build

Scripts are invoked in order to perform the builds. There are two ways of actually doing this. One is by using an enhanced version of ClearCase's Graphical User Interface (GUI). The other is by keying in commands and executing them in a Command Line Interface (CLI). The GUI performs the same commands as the CLI, however the GUI executes the scripts by pointing and clicking a mouse, rather than keying in all of the detail UNIX and Cleartool commands.

The FOS custom software is partitioned into ten (10) areas. The first partition is known as FOSCOMMON, and is comprised of common code that is referenced by the remaining nine subsystems. The nine subsystems are:

- Analysis Subsystem (ANA)
- Command Subsystem(CMD)
- Command Management Subsystem (CMS)
- Data Management Subsystem (DMS)
- FOS User Interface Subsystem (FUI)
- Planning and Scheduling Subsystem (PAS)
- Real-Time Contact Management Subsystem (RCM)
- Resource Management Subsystem (RMS)
- Telemetry Subsystem (TLM)

FOSCOMMON is built *first*. DMS is built *last*. Other than these two constraints, the build order is arbitrary. Each subsystem is built by performing the following five steps:

- Set the view

- Set the path to the subsystem
- Specify the target platform (Sun or DEC)
- Source the .buildrc file
- Enter `Clearmake -C GNU -V`

The CLI interface commands are located in the /scripts/ area. The xclearcase GUI enhanced menu, Configuration Management/Change Control (CM/CC), performs all of the housekeeping for building FOS custom software.

A.2 GUI Build Process

The GUI build process is described below:

1. Ensure that the cm-cc.grp menu file resides in /home/$USER/grp path
2. Run “xclearcase” from a licensed node

   voyager{user}6: xclearcase &

   Using the menu, select the view needed for building FOSCOMMON, expand the menu to fill the monitor by clicking the larger upper right corner button. Ensure that the subsystem make.targets file has the target platform set.
3. Click on “CM/CC”
4. Click on “Build FOS S/W”
5. Click on “Foscommon”
6. Display the transcripts window to provide visibility to the FOSCOMMON build.

The FOSCOMMON build is complete when the build-foscommon script finishes. For each of the remaining nine subsystems, perform the following steps:

7. Using the menu, select the view needed for building the next subsystem
8. Ensure that the subsystem make.targets file has the target platform set
9. Click on “CM/CC”
10. Click on “Build FOS S/W”
11. Click on the next subsystem
12. Display the transcripts window to provide visibility to the subsystem build. The FOSCOMMON build is complete when the build-subsystem script finishes

A record of the build is saved into a logfile, named /home/$USER/logfile. This file can be saved and printed to record the build process for Quality Assurance purposes.

A.3 CLI Build Process

The CLI build process is described below:

1. Build FOSCOMMON:

   Enter the command: `cleartool setview {appropriate view tag}`

2. Set the correct path for FOSCOMMON: `cd /ecs/formal/fos/foscommon2`

3. Ensure that the subsystem make.targets file has the target platform set. Enter the command: `source .buildrc`

4. Enter the command: `Clearmake -C GNU -V`

FOSCOMMON build is complete when the Clearmake finishes. For the remaining nine subsystems, perform the following steps:

A.3.1 Build ANA

1. Enter the command:

   ```
   cleartool setview {appropriate view tag}
   ```

2. Set the correct path for ANA: `cd /ecs/formal/fos/ana2`

3. Ensure that the subsystem make.targets file has the target platform set

4. Enter the command: `source .buildrc`

5. Enter the command: `Clearmake -C GNU -V`

ANA build is complete when the Clearmake finishes

A.3.2 Build CMD

1. Enter the command:

   ```
   cleartool setview {appropriate view tag}
   ```

2. Set the correct path for CMD: `cd /ecs/formal/fos/cmd2`

3. Ensure that the subsystem make.targets file has the target platform set

4. Enter the command: `source .buildrc`

5. Enter the command: `Clearmake -C GNU -V`

CMD build is complete when the Clearmake finishes

A.3.3 Build CMS

1. Enter the command:

```
cleartool setview {appropriate view tag}
```

2. Set the correct path for CMS: `cd /ecs/formal/fos/cms`
3. Ensure that the subsystem make.targets file has the target platform set
4. Enter the command: `source .buildrc`
5. Enter the command: `Clearmake -C GNU -V`

CMS build is complete when the Clearmake finishes

A.3.4 Build FUI

1. Enter the command:

```
cleartool setview {appropriate view tag}
```

2. Set the correct path for FUI: `cd /ecs/formal/fos/fui3`
3. Ensure that the subsystem make.targets file has the target platform set
4. Enter the command: `source .buildrc`
5. Enter the command: `Clearmake -C GNU -V`

FUI build is complete when the Clearmake finishes

A.3.5 Build PAS

1. Enter the command:

```
cleartool setview {appropriate view tag}
```

2. Set the correct path for PAS: `cd /ecs/formal/fos/pas`
3. Ensure that the subsystem make.targets file has the target platform set
4. Enter the command: `source .buildrc`
5. Enter the command: `Clearmake -C GNU -V`

PAS build is complete when the Clearmake finishes

A.3.6 Build RCM

1. Enter the command:

```
cleartool setview {appropriate view tag}
```

2. Set the correct path for RCM: `cd /ecs/formal/fos/rcm3`
3. Ensure that the subsystem make.targets file has the target platform set
4. Enter the command: `source .buildrc`

5. Enter the command: `Clearmake -C GNU -V`

RCM build is complete when the Clearmake finishes

A.3.7 Build RMS

1. Enter the command:

   ```
   cleartool setview {appropriate view tag}
   ```

2. Set the correct path for RMS: `cd /ecs/formal/fos/rms2`
3. Ensure that the subsystem make.targets file has the target platform set
4. Enter the command: `source .buildrc`
5. Enter the command: `Clearmake -C GNU -V`

RMS build is complete when the Clearmake finishes

A.3.8 Build TLM

1. Enter the command:

   ```
   cleartool setview {appropriate view tag}
   ```

2. Set the correct path for TLM: `cd /ecs/formal/fos/tlm2`
3. Ensure that the subsystem make.targets file has the target platform set
4. Enter the command: `source .buildrc`
5. Enter the command: `Clearmake -C GNU -V`

TLM build is complete when the Clearmake finishes

A.3.9 Build DMS

1. Enter the command:

   ```
   cleartool setview {appropriate view tag}
   ```

2. Set the correct path for DMS: `cd /ecs/formal/fos/dms4`
3. Ensure that the subsystem make.targets file has the target platform set
4. Enter the command: `source .buildrc`
5. Enter the command: `Clearmake -C GNU -V`

DMS build is complete when the Clearmake finishes

The entire Build process is complete when all the subsystems have successfully built after the FOSCOMMON. It is now possible to begin the Installation process.

A.2 Installation Procedures

This section outlines the installation procedure for the FOS custom software.

1. Untar tar file. The command is: `tar xvf` file.tar
2. Uncompress file. The command is: `uncompress file.tar.Z`
3. Copy files at the directory level

Appendix B. Special Operating Instructions

Along with the formal documents, FOS software is delivered with README files for most of the subsystems. These files are located in the doc directory for each subsystem. The following disclaimer applies to these files.

These README files have not been verified. They do, however, contain valid and useful information concerning the setting of environment variables and compile instructions. However, should there be any errors or discrepancies between the instructions contained in the README files and the delivered documentation, the delivered documentation should take precedence.

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Appendix C. User Feedback Procedures

Feedback from the Users

Collating user feedback is one of the primary goals of FOS. Collected user feedback will be provided directly to the subsequent release teams for further assessment and action. Several feedback channels will be provided for effective collection of data.

Email
TBD

Telephone
TBD.

URDB
Link to URDB will be provided on the FOS WEB page which is under construction.

Bulletin board
FOS bulletin board server is located on http://newsroom.hitc.com/fos/fos.html.

Non Conformance Reports (NCR)

NCRs for FOS are submitted using the FOS NCR WEB page (URL http://newsroom.gsfc.nasa.gov/sit/ddts/ddts.html). This page provides a direct link to the EDF DDTS database which tracks the FOS NCRs. The access is allowed only to authorized ECS users. The procedure for submitting NCRs is explained in detail in the Project Instruction (PI) SD-1-014, Software Nonconformance Reporting.

Feedback to the users

Keeping the users of the system informed about the status and operational aspects of the system is also as important as collecting feedback from the users. Consistent with this approach, users will be able to get FOS data from the following channels:

Bulletin board
Information will be posted to the bulletin board at http://newsroom.hitc.com/fos/fos.html.

FOS WEB Page
FOS WEB Page (under construction) will also provide useful information including access to the FOS documentation on-line.

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Appendix D. Public Software Disclaimer Notice

The Public Software packages distributed with this delivery remain the property of the author who reserves all rights unless otherwise specified. These packages and the code they produce may be freely distributed without fees, subject to the restrictions contained in a readme file provided with each Public Software package provided. A listing and location of Public Software is provided in section 4.2 of the document.

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Appendix E. Archive Tapes

The following magnetic tape is used to archive the delivered baseline configuration of the developed software.

904-PR- PR-025-001
Label: DEC_FOSA2_P5_101896 Distribution Date: October 18, 1996
>>> 5.0gbyte format (high density) <<<

DEC_FOSA2_P5_101896.tar

904-PR- PR-026-001
Label: SUN_FOSA2_P5_101896 Distribution Date: October 18, 1996
>>> 5.0gbyte format (high density) <<<

SUN_FOSA2_P5_101896.tar

All documents (VDD and User's Guide)
Command to untar tar tape: tar xvf ##
Command to untar tar file: tar xvf file.tar
where ## = your tape device and file.tar = Name you give tar file

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Abbreviations and Acronyms

ANA	Analysis Subsystem
CC	Change Control
CCR	Configuration Change Request
CDRL	Contract Deliverable Requirements List
CERES	Clouds and Earth Radiant Energy System
CI	Configuration Item
CLI	Command Line Interface
CM	Configuration Management
CMD	Command Subsystem
CMS	Command Management Subsystem
COTS	Commercial off-the-shelf Software
CSMS	Communications and Systems Management Segment (ECS)
CRC	Cyclic Redundancy Code
CSC	Coordinate System Conversion
CSCI	Computer Software Configuration Item
CSS	Communication Subsystem
DAAC	Distributed Active Archive Center
DCE	Distributed Computing Environment
DCN	Document Change Notice
DDTS	Distributed Defect Tracking system
DID	Data Item Description
DMS	Data Management Subsystem
ECS	EOSDIS Core System
EDHS	ECS Data Handling System
EDOS	EOS Data and Operations System
EOS	Earth Observing System

EOSAM	EOS AM Project (morning spacecraft series)
EOSDIS	EOS Data and Information System
EOSPM	EOS PM Project (afternoon spacecraft series)
ESDIS	Earth Science Data and Information System
FOS	Flight Operations Segment
FOT	Flight Operations Team
ftp	file transfer protocol
FUI	FOS User Interface Subsystem
GSFC	Goddard Space Flight Center
GUI	Graphical User Interface
HAIS	Hughes Applied Information Systems
HITC	Hughes Information Technology Company
I&T	Integration & Test
I/O	Input/Output
IP	International Partner
ISS	Internetworking Subsystem
LaRC	Langley Reseaarch Center
M&O	Maintenance and Operation
MET	Metadata
MSS	Management Subsystem
NASA	National Aeronautics and Space Administration
NCR	Nonconformance Report
NCSA	National Center for Supercomputer Applications
PAS	Planning and Scheduling
PDB	Project Data Base
PDR	Preliminary Design Review
PI	Project Instruction
QA	Quality Assurance
RCM	Real-Time Contact Management Subsystem

RMS	Resource Management Subsystem
RRDB	Recommended Requirements Database
SCF	Science Computing Facility
SDP	Science Data Production
SDPS	Science Data Processing Segment
SDPF	Science Data Processing Facility
TBD	To Be Determined
TLM	Telemetry Subsystem
TRMM	Tropical Rainfall Measuring Mission (joint US - Japan)
URL	Universal Research Locator
US	United States
WWW	World Wide Web